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EXAMINER

KADING, JOSHUA A

ART UNIT PAPER NUMBER

2661

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|-----------------------------|--|
| Office Action Summary | Application No. 09/746,010 | Applicant(s) WENG ET AL. | |
| | Examiner Joshua Kading | Art Unit 2661 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-9 is/are allowed.
- 6) ☒ Claim(s) 1-5 and 10-20 is/are rejected.
- 7) ☒ Claim(s) 4, 6 and 10-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 6, 10-14, and 16-20 are objected to because of the following informalities:

Claim 6:

5 Lines 12-13 state "the remaining packet". This should be changed to --a remaining part of the packet--. This is consistent with similar claim language in claim 8 for example.

Claim 10:

10 Line 3 states "only one said data buffer...only one said packet". This should be changed to --only one of said data buffers...only one packet--.

 Line 4 states "the same time". This should be changed to --a time--.

 Lines 4 and 6 state "one said packet". This should be changed to --said one packet--.

15 Line 5 states "one corresponding said data buffer". This should be changed to --said one corresponding data buffer--.

 Line 8 states "each said packet by one said descriptor and one said data buffer". This should be changed to --said one packet by said one descriptor and said one data buffer--.

20 Line 12 states "at least partial a packet...the received part of said packet". This should be --at least a partial packet...the received partial packet--.

Claim 11:

Lines 1-2 states "being asserting when the received part of said packet exceeds one said segment". This should be changed to --asserted when the received partial packet exceeds said one segment--.

5

Line 3 states "noticing that there is enough". This should be changed to --notice that there is enough-- or (preferably) --determine that there is enough--.

Lines 3-4 state "part of said packet to be output." This should be changed to --partial packet to output.--

10

Claim 12:

Line 1 states "stored part of said packet". This should be changed to --said stored partial packet--.

Claim 13:

Line 2 states "at least being". This should be changed to --being at least--.

15

Claim 14:

Lines 1-2 state "the size of each said data buffer being the maximized value of each said packet." This should be changed to --a size of each said data buffer being a maximized value of each packet--.

20

Claim 16:

Line 2 states "a plurality of descriptor". This should be changed to --a plurality of descriptors--.

Line 3 states "only one said packet at the same time". This should be changed to --only one of said packets at a time--.

Line 5 states "only one said descriptor". This should be changed to --only one of said descriptors--.

5 Line 7 states "in according a logical". This should be changed to --according to a logical--.

Line 8 states "said controller control". This should be changed to --said controller controls--.

10 Lines 8-9 state "one said packet...said data buffer...corresponding said data buffer". This should be changed to --one of said packets...said part of said packet...corresponding data buffer--.

Lines 9-11 state "said controllers...said packet from corresponding said buffer". This should be changed to --said controller...said part of said packet from said corresponding buffer--.

15 Claim 17:

Lines 1-2 state "being asserting...the received part of said packet in one said data buffer". This should be changed to --asserted...the part of said packet in said corresponding data buffer--.

20 Line 3 states "one said segment". This should be changed to --one of said segments--.

Line 3 states "noticing". This should be changed to --notice-- or (preferably) --determine--.

Lines 3-4 state "there is enough received part of said packet to be output." This should be changed to --there is enough of said received part of said packet to output.--

Claim 18:

5 Line 1 states "stored part of one said packet". This should be changed to --said stored part of one of said packets--.

Claim 19:

10 Line 2 states "said packet, and said data buffer at least being". This should be changed to --said part of said packet, and said corresponding data buffer being at least--.

Claim 20:

15 Lines 1-2 state "the size of each said data buffer being the maximized value of each of said packet". This should be changed to --a size of each of said data buffers being a maximized value of each of said packets--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

20 The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 10-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5 Claim 4, line 3 recites the limitation "the segment". There is insufficient antecedent basis for this limitation in the claim.

 Claim 10, line 7; and claim 13, line 1 recites the limitation "said packets". There is insufficient antecedent basis for this limitation in the claim.

10

 Claim 10, line 14 states "said packet". It is unclear to which packet line 14 is referring. Is it line 3, which discloses a first packet or line 12, which discloses a second packet?

15 Claim 10, lines 13-15; and claim 16, line 11 recites the limitation "the unit". There is insufficient antecedent basis for this limitation.

 Claim 11, states "the received [partial packet] exceeds [said one] segment". There is insufficient antecedent basis for "[said one] segment". Further, it is unclear
20 what is meant by the packet "exceeds" the segment. In what way does the packet exceed the segment - i.e. does the packet exceed the segment in time, length, or something else?

Claim 12, line 2; and claim 18, line 2 states "the stored amount avails a segment". There is insufficient antecedent basis for "the stored amount". Further, what does "the stored amount avails a segment" mean? It is unclear why applicant uses the word "avails" as it does not make sense in the context of the claim. Does applicant mean to say the stored amount exceeds a segment? As in claim 11, if this is the intended meaning, in what way does the stored amount exceed the segment?

Claim 14, line 2 states "each packet". The word "each" implies more than one, as such there is insufficient antecedent basis for this limitation.

Claim 17, lines 2-3, state "said [corresponding] data buffer exceeds [one of] said segments". There is insufficient antecedent basis for "said segments". Further, it is unclear what is meant by the buffer "exceeds" the segment. In what way does the buffer exceed the segment - i.e. does the buffer exceed the segment in size, length or something else?

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 5, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. (U.S. Patent 5,477,541) and applicant's admitted prior art (AAPA) in further view of Burrows (U.S. Patent 5,303,302).

5 In regard to claim 1, White discloses "a packet receiving method for use on a packet-switching network for handling each received packet, comprising the steps of:
allocating a descriptor and a data buffer, the descriptor for recording a link status between the descriptor and the data buffer and a reception status of a packet, and the data buffer for storing the packet, and the size of the data buffer being fixed (figure 20,
10 elements 48A and 52A; figure 24, element "buffer address" and "amount of data" indicates the receipt of data since it holds the value of the amount of data received; col. 14, lines 6-7; col. 15, lines 9-25; col. 2, lines 39-41 shows the fixed buffer size)..."

 However, White lacks what AAPA discloses, "activating an early interrupt mode (specification, page 3, lines 6-24 whereby storing the ER signal implies that it must have
15 been activated so that it could be stored)...; setting an early receiving interrupt signal and a ready interrupt signal (specification, page 3, lines 6-24 whereby storing the ER signal it has been set, and when the OK signal (herein acting as the read signal) "appears" it has been set); in response to the early receiving interrupt signal, reading a part of the packet stored in the data buffer (specification, page 3, lines 6-11 where the
20 ER signal is used to read data in storage, which must include a part of a packet, if a part of a packet wasn't read, then no data would be read at all); and in response to the ready

interrupt signal, retrieving and forwarding a remaining part of packet stored in the data buffer (specification, page 3, lines 21-25)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the interrupts with the descriptor and data buffer for the purpose of receiving and transmitting all the required data at appropriate times. The motivation being the ability to access the desired data and forward it when necessary.

White and AAPA however, further lack what Burrows discloses, "setting a logical segmentation value (figure 3, element 162 shows a buffer used for storing data that can store a plurality of packets, as read in col. 4, lines 14-18 that buffer is split into segments of 48 bytes thus implying that the value "48" must have been chosen/set)...dividing the data buffer according to the logical segmentation size value into a plurality of segments (figure 3, element 162 and col. 4, lines 14-18 describe the buffer split into a plurality of segments in accordance with the logical segmentation size)..."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the logical segmentation value for the purpose of setting an appropriate size for data to be stored in the buffer. The motivation for setting an appropriate size for a data buffer is to minimize data overflow in the buffer (Burrows, col. 4, lines 10-13).

In regard to claim 2, White, AAPA, and Burrows disclose "the method of claim 1". However, White and Burrows lack "performing a write-back operation on the descriptor

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after all the packet data stored in the data buffer have been forwarded so as to reset the descriptor." AAPA however, further discloses "performing a write-back operation on the descriptor after all the packet data stored in the data buffer have been forwarded so as to reset the descriptor (specification, page 3, lines 11-13)." It would have been obvious

5 to one with ordinary skill in the art at the time of invention to include the write-back operation with the method of claim 1 for the same reasons and motivation as in claim 1.

In regard to claim 3, White, AAPA, and Burrows disclose "the method of claim 1". However, White and Burrows lack "asserting the ready interrupt signal when the whole
10 packet has completely been moved to the data buffer." AAPA however, further discloses "asserting the ready interrupt signal when the whole packet has completely been moved to the data buffer (specification, page 3, lines 21-24)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the asserting of the ready interrupt signal with the method of claim 1 for the same reasons and motivation
15 as in claim 1.

In regard to claim 5, White, AAPA, and Burrows disclose "the method of claim 1". However, AAPA and Burrows lack "the packet-switching network is Ethernet." White however, further discloses "the packet-switching network is Ethernet (col. 2, lines 38-
20 39)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the Ethernet with the method of claim 1 for the same reasons and motivation as in claim 1.

Although it is not entirely clear what "said packets" refers to in line 7, it is assumed that "said packets" is meant to refer back to "said one packet" disclosed previously. Similarly, it is assumed that "said packet" of line 14 is referring back to "the
5 received partial packet".

Regarding claim 10, White discloses "a method for processing packet, comprising the steps of:

allocating a plurality of descriptors and a plurality of data buffers, each said descriptor corresponding to one and only one of said data buffers for receiving one and
10 only one packet at a time, wherein each said descriptor records a reception status of said one packet and a link status between said descriptor and said one corresponding data buffer, wherein each data buffer is used to store one said packet, wherein each said data buffer has a fixed size (figure 20, elements 48A and 52A; figure 24, element
15 "buffer address" and "amount of data" indicates the receipt of data since it holds the value of the amount of data received; col. 14, lines 6-7; col. 15, lines 9-25; col. 2, lines 39-41 shows the fixed buffer size)..."

However, White lacks what AAPA discloses, "processing said packets by said descriptors and said data buffers, the steps of processing said one packet by said one descriptor and said one data buffer comprising the steps of: receiving at least a partial
20 packet and storing the received partial packet in said data buffer (specification, page 3, lines 6-11 and 21-25 where it is strongly implied by lines 21-25 that the packet stored is

a partial packet); and outputting at least a portion of said packet from said buffer in the unit of said segments (specification, page 3, lines 21-25)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the interrupts with the descriptor and data buffer for the purpose of receiving and transmitting all the required data at appropriate times. The motivation being the ability to access the desired data and forward it when necessary.

White and AAPA however, further lack what Burrows discloses, "setting a logical segmentation size value (figure 3, element 162 shows a buffer used for storing data that can store a plurality of packets, as read in col. 4, lines 14-18 that buffer is split into segments of 48 bytes thus implying that the value "48" must have been chosen/set); dividing said data buffer by said logical segmentation size value into a plurality of segments in according to said logical segmentation size value (figure 3, element 162 and col. 4, lines 14-18 describe the buffer split into a plurality of segments in accordance with the logical segmentation size)..."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the logical segmentation value for the purpose of setting an appropriate size for data to be stored in the buffer. The motivation for setting an appropriate size for a data buffer is to minimize data overflow in the buffer (Burrows, col. 4, lines 10-13).

Although it is not entirely clear what "said packets" refers to in line 1, it is assumed that "said packets" is meant to refer back to "said one packet" disclosed previously.

Regarding claim 13, White, AAPA, and Burrows disclose the method of claim 10.

5 However, AAPA and Burrows lack what White further discloses, "said packets being received through a network card (figure 4 shows the element 104 which is a functional equivalent to a network card as described in col. 4, lines 38-40) and said data buffer being at least a portion of a system memory of a host computer wherein said network card is located (col. 13, lines 56-57)." It would have been obvious to one with ordinary
10 skill in the art to include the network card and memory for the same reasons and motivation as in claim 10.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over White et al., AAPA, and Burrows as applied to claim 1, and further in view of Smith (U.S. Patent
15 5,400,326).

In regard to claim 4, White, AAPA, and Burrows disclose "the method of claim 1". However, White, AAPA, and Burrows lack "asserting the early receiving interrupt signal when [the] data amount of the packet already moved into the data buffer [exceeds] the logical segmentation size value". Smith however, discloses "asserting the early
20 receiving interrupt signal when [the] data amount of the packet already moved into the data buffer [exceeds] the logical segmentation size value (figure 3 when the "memory logical segmentation size" is exceeded, the frame or packet is read (as described in

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claim 1 using the early receiving interrupt signal) from the receive buffer to the system memory)". It would have been obvious to one with ordinary skill in the art at the time of invention to include the reading of data in the buffer with the method of claim 1 for the purpose of making room in the buffer for the incoming data. The motivation being that if room is not made, the data stored in the buffer has the potential to be overwritten and lost.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter: Claims 6 and 7 are allowable because the prior art of record fails to teach in combination with other claim limitations, "when the controller has moved a specified length of the packet above a logical segmentation size value to the data buffer, asserting the early receiving interrupt signal; when the controller has completely moved the whole packet to the data buffer, asserting the ready interrupt signal."

Claims 8 and 9 are allowable because the prior art of record fails to teach in combination with other claim limitations, "determining whether the packet has completely been received; if No: asserting an early receiving interrupt signal, when a length of the packet above the logical segmentation size value has been moved to the data buffer; checking the reception status of the packet in response to the early receiving interrupt signal; retrieving a part of the packet stored in the data buffer when the reception status of the packet indicates that the packet has not completely been moved to the data buffer; and retrieving a remaining part of the packet stored in the data

buffer when the reception status of the packet indicates that the whole packet has completely been moved to the data buffer...”

Response to Arguments

5 The objection to the Drawings has been withdrawn in light of applicant's amended drawings filed 11 June 2004.

 The objections to claims 1, 3, 4, 7, and 8 have been withdrawn in light of applicant's amendment filed 11 June 2004.

10

 The rejection under U.S.C. 112 second paragraph of claims 8 and 9 has been withdrawn in light of applicant's amendment filed 11 June 2004.

 Applicant's arguments filed 11 June 2004 have been fully considered but they are
15 not persuasive.

 Regarding claims 1-3, and 5, applicant argues that White in view of AAPA is not appropriate because “the Early-Receive operation will not occur if only one packet buffer is used” and this differs from applicant's invention as in claim 1. The examiner respectfully disagrees.

20 The AAPA does not say the Early-Receive operation will not occur if there is a single buffer. In fact, the AAPA says that the ER signal will prompt, in combination with other parameters, the retrieval of the data from storage. This fully reads on applicant's

invention as claimed in claim 1, lines 10-11. Further, there is no mention of an "Early-Receive operation" in claim 1. There is only mention of an ER signal and a response to the signal. As such, White in view of AAPA and further in view of Burrows (as above) fully reads on applicant's invention as claimed.

5 Regarding claim 4, applicant argues that Smith is not combinable with White and AAPA because Smith teaches the use of more than one buffer and this teaches away from the invention and Smith does not teach dividing the buffer. The examiner respectfully disagrees.

 First, it is never argued that Smith teaches the dividing of the buffer. As seen
10 above, the dividing of the buffer is taught by Burrows, thus White, AAPA, Burrows in further view of Smith is used to reject claim 4.

 Although claim 4 does not explicitly state the use of more than one buffer, it would have been obvious to one with ordinary skill in the art at the time of invention to take the idea of a multiple buffer system and apply that to a single buffer as a matter of
15 design choice. It does not matter whether there is one buffer or more than one because buffer sizes are specified by designers and as such, this allows the designer to effectively take many buffers and create one large buffer. This is the case in Smith as seen in figure 2. Although Smith has labeled the element "buffers", it is treated as a single large buffer unit. Therefore, it would have been obvious to one with ordinary skill
20 in the art to see that Smith reads on claim 4 of applicant's invention.

 In response to applicant's argument that Smith cannot further be combined with White in view of AAPA because Smith provides a different purpose and reason for

combining than the applicant's purpose and reasoning is not sufficient, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

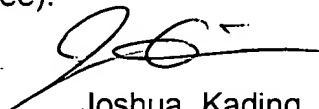
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Kading whose telephone number is (571) 272-3070. The examiner can normally be reached on M-F: 8:30AM-5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

5 Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should
10 you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joshua Kading
Examiner
Art Unit 2661

October 6, 2004

15



KENNETH VANDERPUYE
PRIMARY EXAMINER